STEREO TURNTABLE

PL-50

PV

OPERATING INSTRUCTIONS

PIONEER®

Thank you for your purchase of Pioneer's Model PL-50.
You will get many years of pleasure from this quality-crafted component. For the highest performance of the PL-50, read this manual carefully and follow the directions indicated.

FEATURES

FOUR-POLE SYNCHRONOUS MOTOR WITH BELT DRIVE

Completely free from even minor voltage fluctuations. The PL-50 synchronous motor combined with the precision polyurethane drive belt brings wow and flutter to inaudible levels.

AUTOMATIC FEATURES FOR SIMPLE OPERATION

The PL-50 includes automatic return and automatic cut, and these are carried out quite simply by moving the function lever. The oil-damped tonearm raises and lowers very gently, protecting stylus and record surface.

TOP QUALITY CARTRIDGE

The induced magnet type cartridge (model PC-35) will reproduce a wide frequency range of 10~25,000 Hz with minimum distortion and great tonal richness. Very stable operation and excellent stereo characteristics.

PROFESSIONAL TONEARM

The undesirable tendency to the tonearm to drift more toward the inside walls of the record groove is cancelled with Pioneer's "inside force canceller". This magnetic device is efficient, stable and easy to operate. An adjustable lateral balancer is also included. Stylus pressure dial provides easy direct reading.

TRUE EASE OF OPERATION IN A MOST ATTRACTIVE DESIGN

The PL-50 is designed to deliver the highest fidelity and performance characteristics in a unit of exceptional visual appeal. An added new convenience is the dust cover which is provided with spring-hinges; it can be opened to any height and will hold this position. Easy to use, the high fidelity PL-50 will make a fine addition to any stereo system.

INSTALLATION

Install your Model PL-50 with the following points in mind.

- The place must be well-ventilated and free from humidity and dust.
- The unit should not be exposed to the direct rays of the sun.
- The unit should not be placed near a heater.
- Choosing the location for a turntable is especially important. It should be protected from vibration or shock. If placed on the floor, the turntable will receive vibration from footsteps, for example. A position on a bookshelf is therefore recommended. Additional protection from vibration may be had placing absorbent padding such as sponge rubber under the turntable. The turntable should not touch the amplifier or receiver. Usually two or three inches of separation is sufficient. Various positions should be tried out for the best result.
  For turntables or changers, freedom from physical vibration or shock and physical separation from the amplifier will assure best performance.

TYPICAL STEREO SETUP

The diagram at the right shows a typical installation, and the relationship of turntable, receiver and speakers.

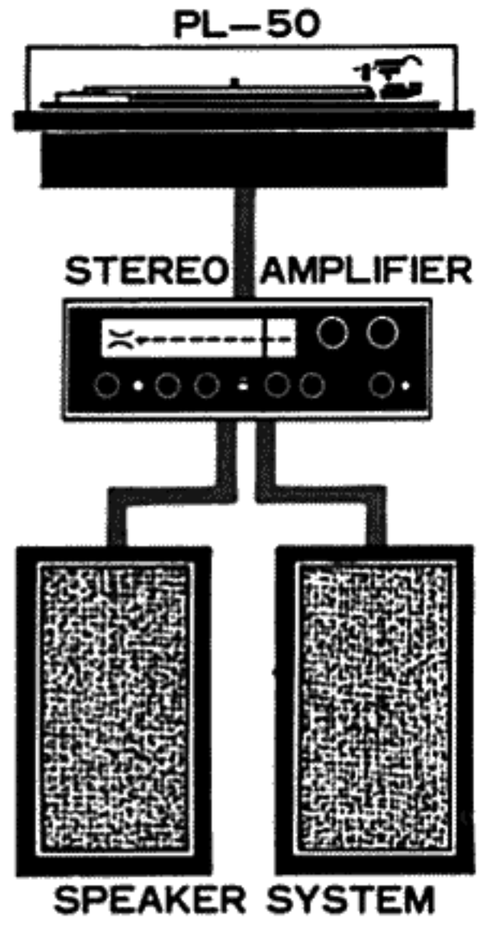


Fig. 1

LINE VOLTAGE AND FREQUENCY

Check the line voltage and frequency in your area before turning power on, because your PL-50 may not be conditioned for operation ot the line voltage and frequency in your area.

LINE VOLTAGE

1. Fig. 2 shows the location of the line voltage selector switch and lock plate. Remove the screw in the lock plate with a Philips screwdriver (not furnished) to free the lock plate.
2. Set the selector switch to the proper line voltage marking, hold the switch in position with the lock plate, and tighten the screw.

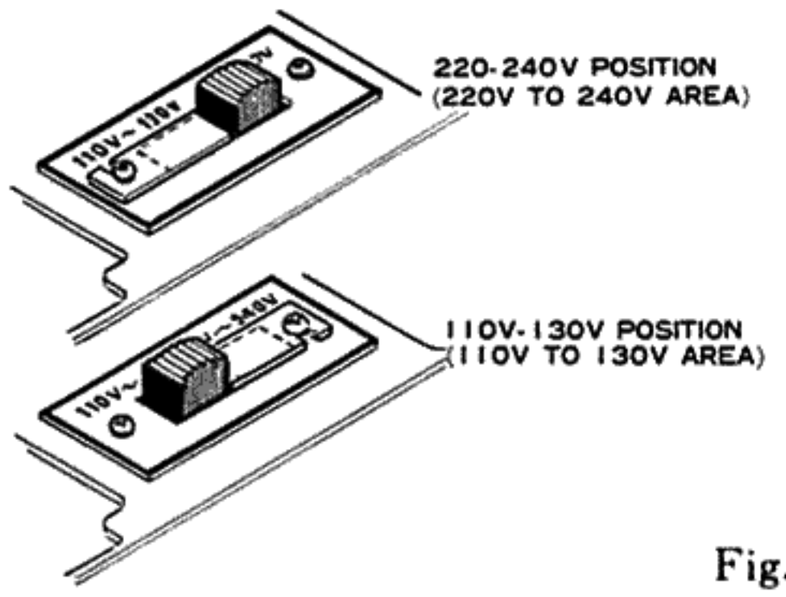


Fig. 2

LINE FREQUENCY

Two kinds of capstans are furnished with the unit; one for 50 Hz operation and the other for 60 Hz. The 50 Hz capstan has a larger diameter, and the 60 Hz capstan, a smaller diameter with a groove in the lower part.

Check the line frequency in your area and set the proper capstan in your PL-50 as follows:

- Remove the platter; the step capstan is easily visible.
- Loosen the two setscrews on the side of the capstan with the small screwdriver furnished in the accessory group, and remove them. (Fig. 3)
- Install the other capstan, following the above steps in reverse order.

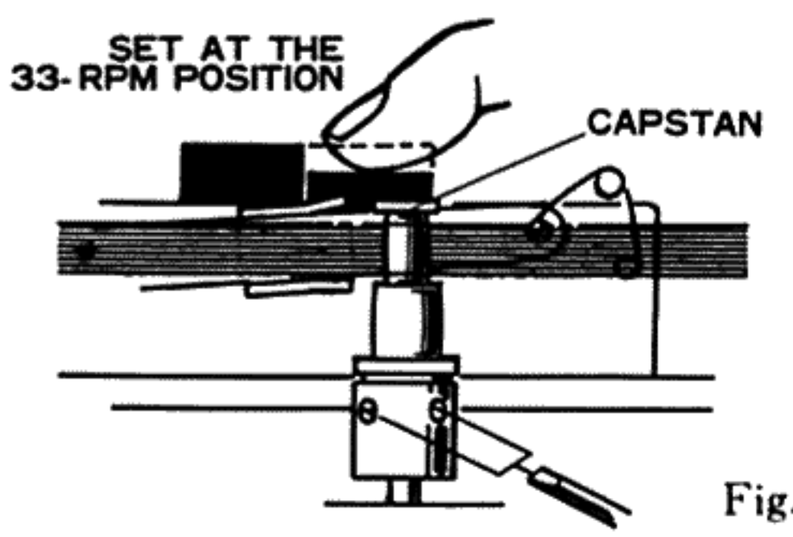


Fig. 3

ASSEMBLY OF TURNTABLE

To prevent any possible damage in transit, precision parts and the heavy platter are packed separately from the wooden base in the same packing case. Carefully unpack the packing case and install individual parts in proper positions in the following steps:

REMOVE THREE MOTOR-BOARD CLAMPING SCREWS

The cramping screws are tipped with red paint. When they are removed, the motor-board is freed from the base plate and supported by three suspension springs with plastic cushions. (Fig. 4)

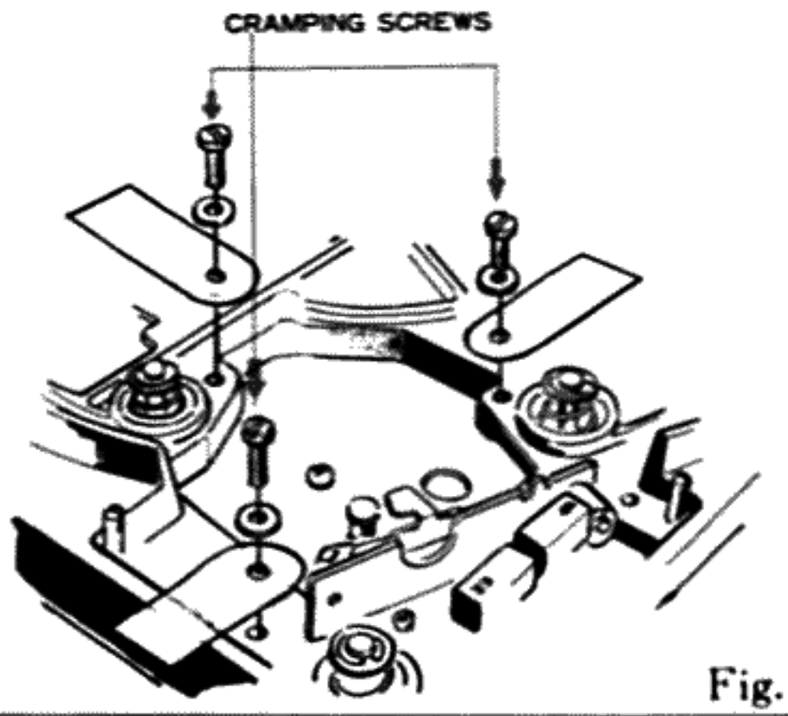


Fig. 4

MOUNTING TURNTABLE PLATTER

The turntable platter is packed separately from the wooden base in the same packing case. Take it out from the case and mount it on the center shaft of the base plate. Place the rubber mat on the platter after the drive belt is set on the capstan.

SET THE BELT ON THE CAPSTAN

Set the speed selector switch to the 33-1/3 rpm position.
Pulling one ribbon attached to the drive belt, put the belt through the shift lever (belt guide) and set it on the smaller diameter portion (upper portion) of the capstan. After the belt is properly set on the capstan, remove the ribbon. (Fig. 5)

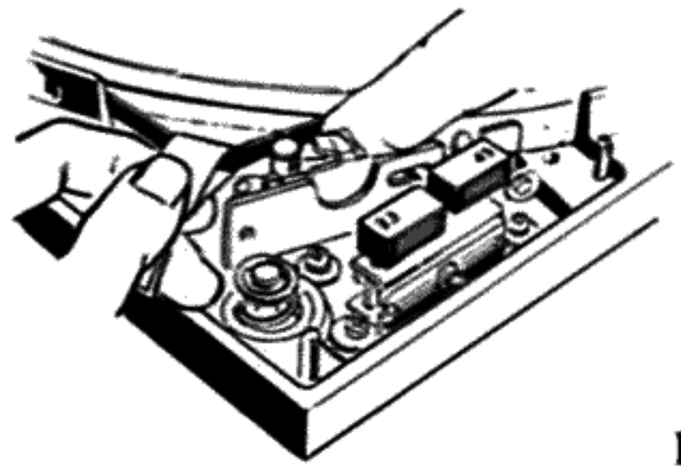


Fig. 5

ASSEMBLY OF TONEARM

(A) MOUNTING THE MAIN COUNTERWEIGHT

Mount the main counterweight on the rear of the tonearm and push it as far as it will go. Threads of the counterweight and the arm will soon engage each other. Then rotate it clockwise two or three turns. (Fig. 6)

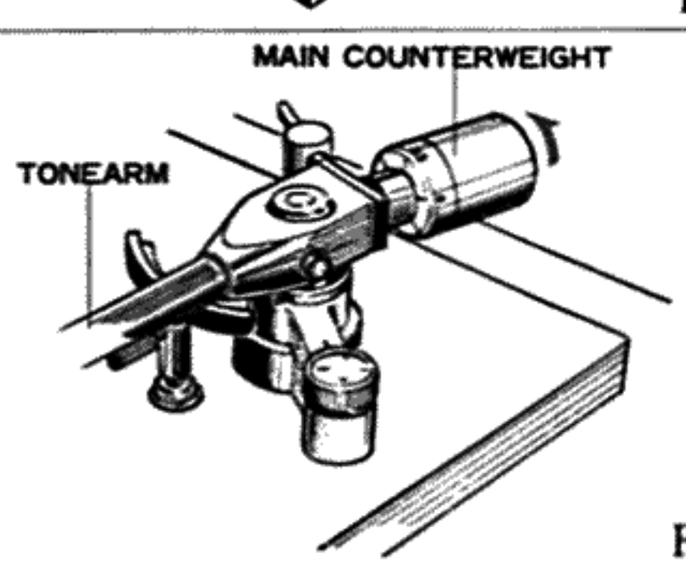


Fig. 6

(B) ATTACHING ARM HEAD

Since the arm head at the end of the tonearm is not provided with a cartridge, take the arm head out by unscrewing the locked collar attached in the arm head. Replace it with an arm head with a cartridge which is separately packed. The PL-50 has a provision to permit you to adjust the stylus vertically over the range of ±2 to 3 degrees. Adjust the stylus angle with respect to the record face to exactly 90 degrees. (Fig. 7)

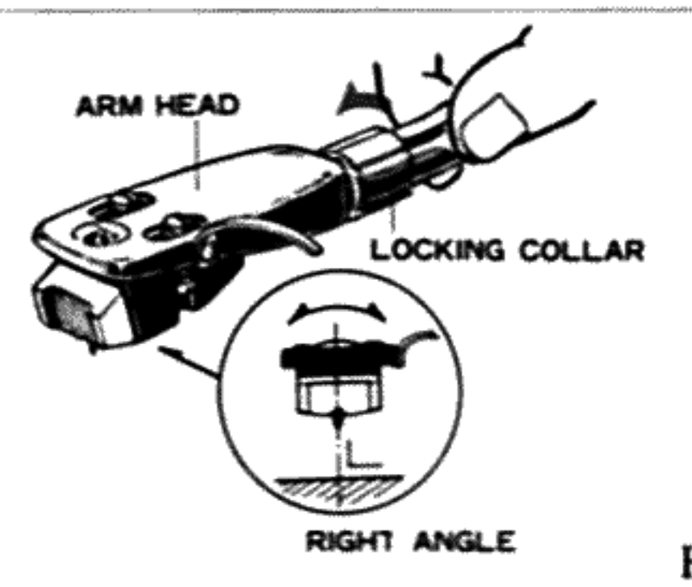


Fig. 7

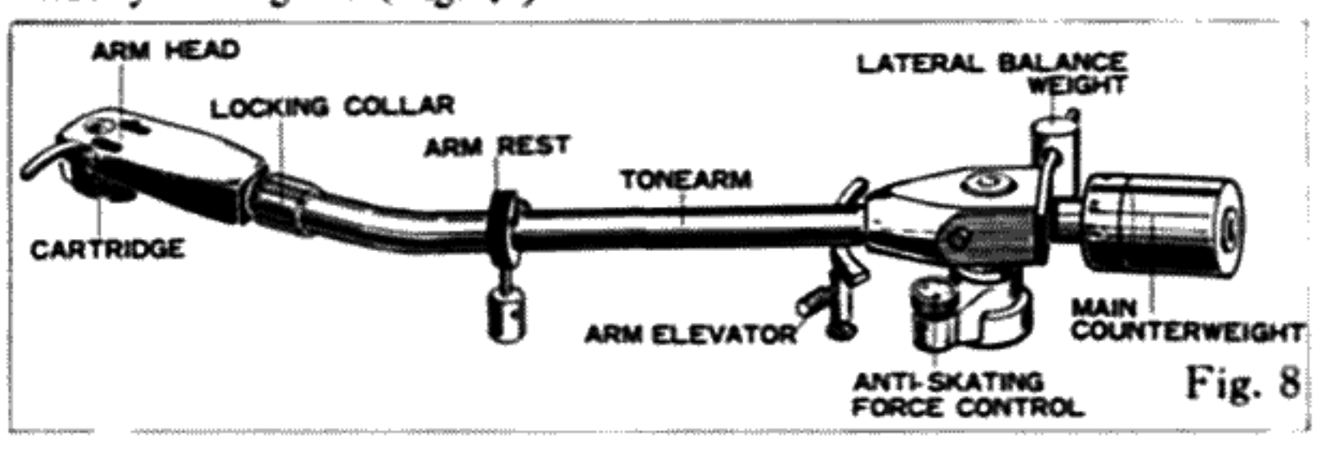


Fig. 8

ATTACHING DUST COVER

The plastic dust cover is attached by sliding the hinges laterally as shown in Fig. 9 . Hold the dust cover as near the hinges as possible. Attach it firmly by pushing the hinges all the way in Fig. 9 . The hinge design allows you to select an "open" position for the cover anywhere from 30° ~ 60°

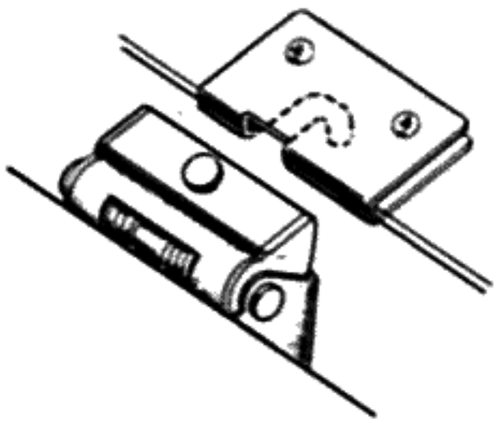
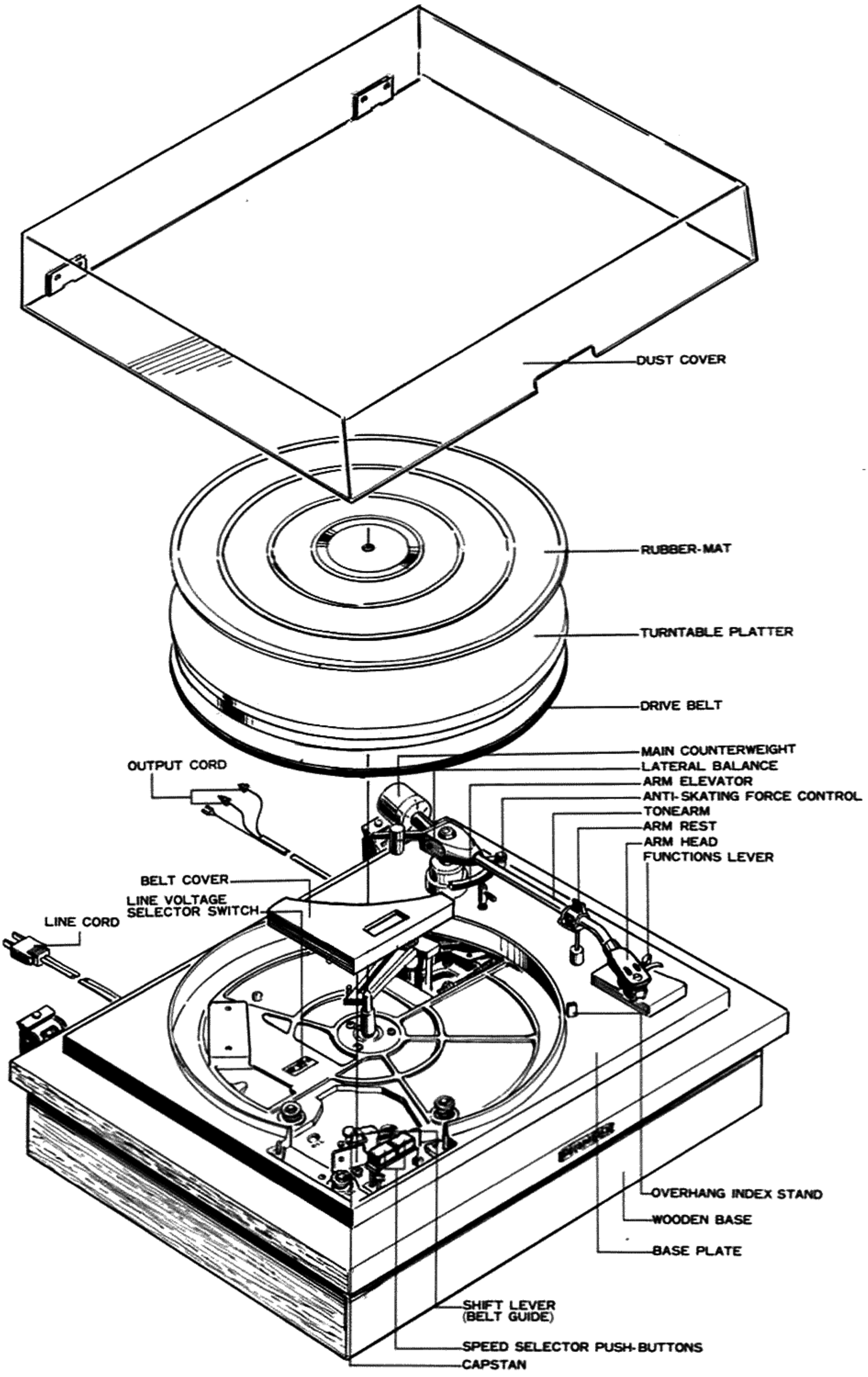


Fig. 9


DUST COVER
RUBBER-MAT
TURNTABLE PLATTER
DRIVE BELT
OUTPUT CORD
MAIN COUNTERWEIGHT
LATERAL BALANCE
ARM ELEVATOR
ANTI-SKATING FORCE CONTROL
TONEARM
ARM REST
ARM HEAD
FUNCTIONS LEVER
BELT COVER
LINE VOLTAGE SELECTOR SWITCH
LINE CORD
OVERHANG INDEX STAND
WOODEN BASE
BASE PLATE
SHIFT LEVER (BELT GUIDE)
SPEED SELECTOR PUSH-BUTTONS
CAPSTAN

ADJUSTMENT

TONEARM BALANCING

Remove the stylus cover from the cartridge. With the tonearm off the arm rest, turn the main counterweight in either direction until the tonearm is horizontally balanced. A stylus pressure dial ring is provided at the front of the main counterweight. While keeping the main counterweight in position, turn the dial ring until the 0-gram reading on the dial aligns with the white index line engraved on the tonearm. The stylus pressure is now zero grams. (Fig. 12)

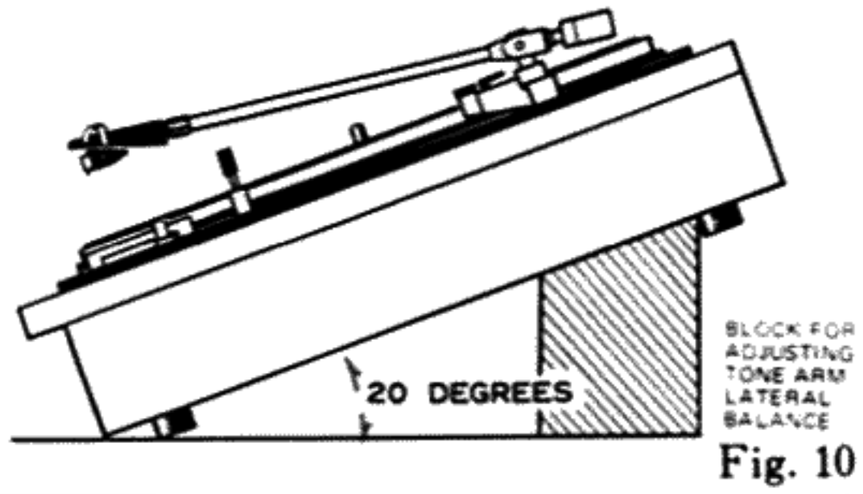


Fig. 10

LATERAL BALANCE ADJUSTMENT

After the tonearm is balanced, turn the "BIAS" of the anti-skating force control dial to the black line engraved on the control arm. Raise the rear of the turntable base until its bottom makes an angle of about 20 degrees with respect to the horizontal plane, and see if the tonearm drifts in either direction. (Fig.10.) If the tonearm tends to drift toward the center of the turntable (to the left when viewed from the front), inch the lateral balancing weight toward "A" in Fig.11, and if it tends to drift toward the outside (to the right when viewed from the front), inch the lateral balancing weight toward "B". Repeat this adjustment until the tonearm completely balances laterally. (Fig.11)

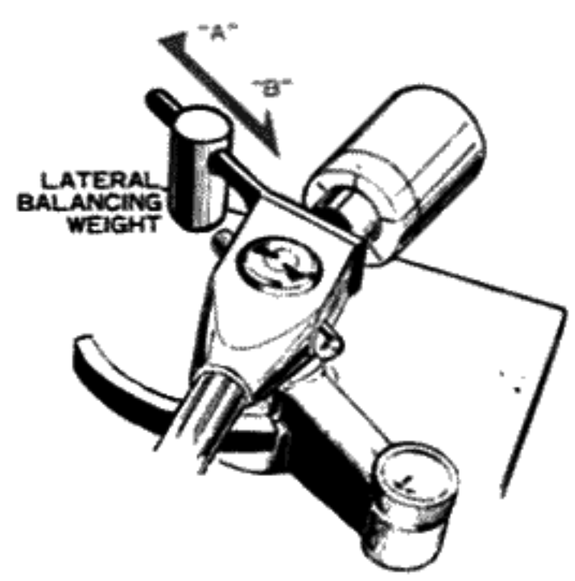


Fig. 11

NOTE:
- Since a permanent magnet is used in the tracking balance control, its magnetic field always tends to make the tonearm drift toward the outside of the turntable. Therefore, the tonearm may drift toward the outside of the turntable even if the tracking balance control is set to zero and the lateral balancing is perfect.
- Adjustment for lateral balancing is usually made with the stylus cover removed. Extreme care must be paid not to drop the arm head on the platter or turntable base plate.
- It is recommended to use the accessory adjustment stand convenient in laterally balancing.

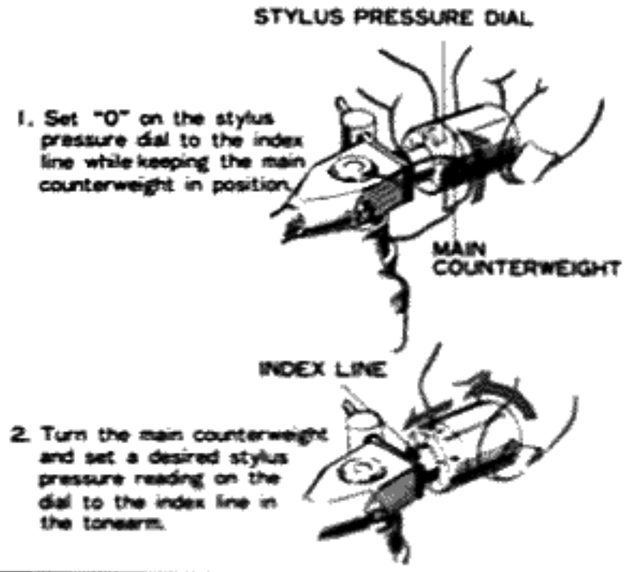

STYLUS PRESSURE DIAL
1. Set "0" on the stylus pressure dial to the index line while keeping the main counterweight in position.
MAIN COUNTERWEIGHT
INDEX LINE
2. Turn the main counterweight and set a desired stylus pressure reading on the dial to the index line in the tonearm.

Fig. 12

STYLUS PRESSURE (TRACKING FORCE)

After lateral balancing is adjusted, turn the main counterweight together with the stylus pressure dial ring (the dial is direct-reading up to 3 grams in 0.5 increments). Set the stylus pressure 2 ~ 3 grams position which is optimum for the PC-35. (Fig. 12)

ANTI-SKATING FORCE CONTROL

With the PL-50, the adjustment for cancelling the skating force is very simple; you need only find the current stylus pressure reading on the anti-skating force control dial and set it to the index mark. (Fig.13) (Fig.14 .)

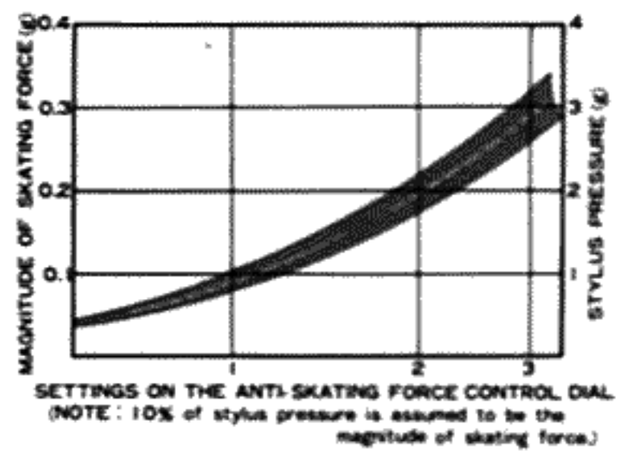


Fig. 13

EXAMPLE: Read the value on the stylus pressure dial. If it is two grams, find "2" on the anti-skating force control dial and set it to the black index mark.

NOTE: The anti-skating force control may be affected when the stylus or the record is changed, although the anti-skating force control is properly adjusted intially, however, the influence on music reproduction is practically negligible.

Fig. 14

OVERHANG ADJUSTMENT

Whenever the cartridge is changed, adjust the stylus position (i.e., the arm overhang) as follows:
Mount a cartridge in the arm head but leave the mounting screws loose. Move the cartridge back and forth so that the stylus point comes exactly above the index line engraved in the overhang index stand. Then tighten the screws securely. **(Fig. 15)**

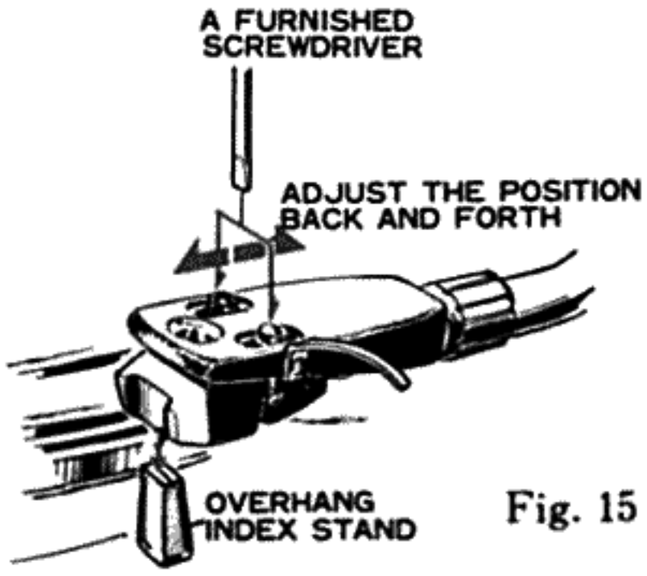
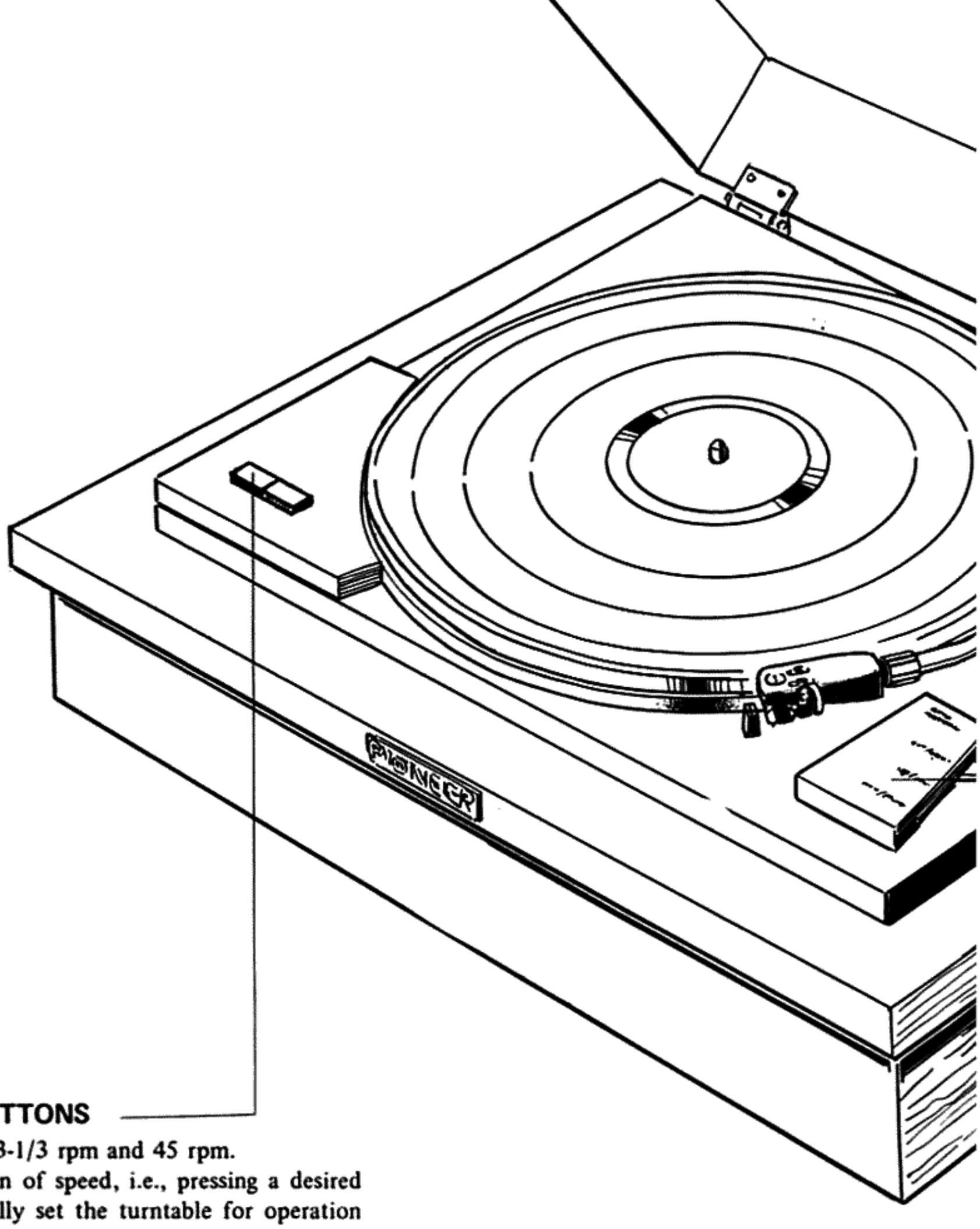
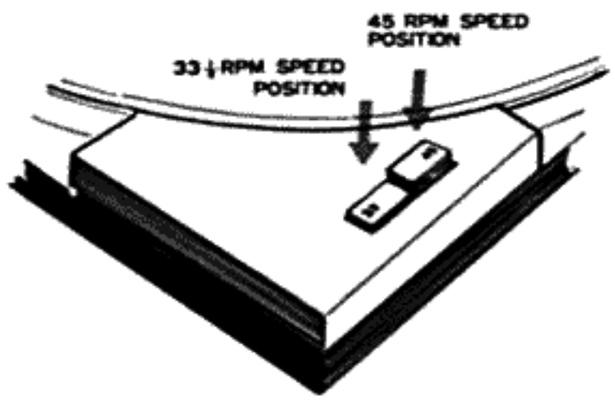


Fig. 15

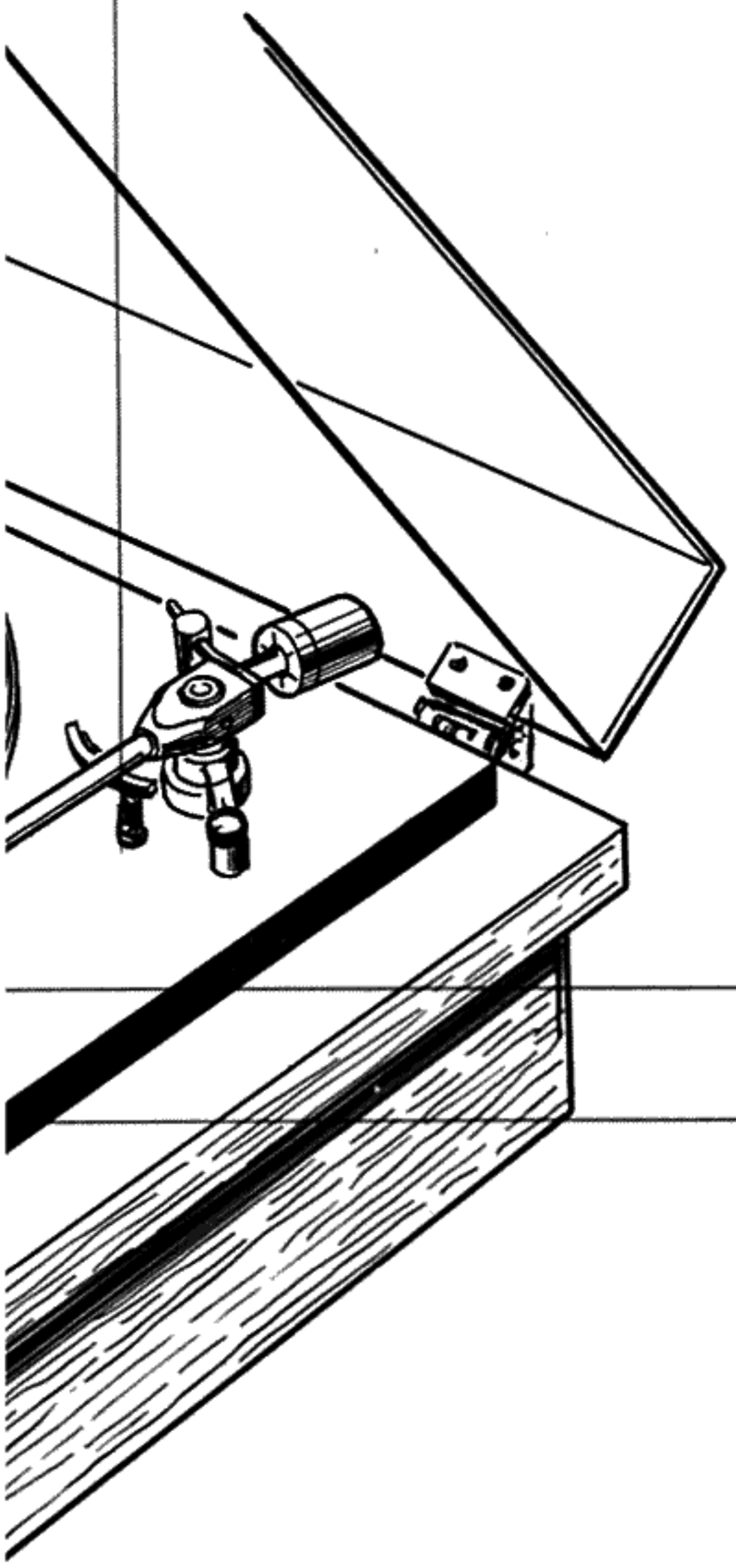




SPEED SELECTOR PUSH-BUTTONS

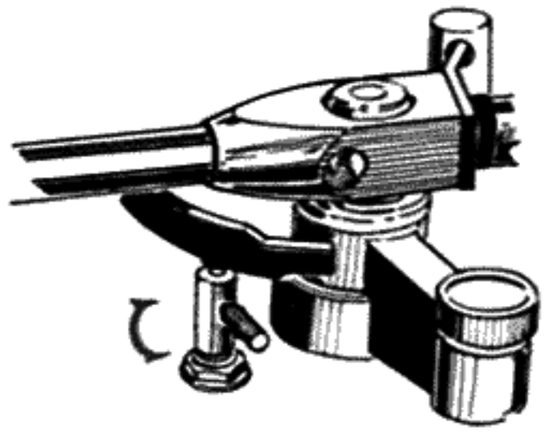
The PL-50 is a two-speed Model; 33-1/3 rpm and 45 rpm.
Two push-buttons control selection of speed, i.e., pressing a desired speed push-button will automatically set the turntable for operation of the desired speed. The PL-50 is a belt-drive system in which the motor drives the platter through a belt. Change of speeds should be made only when the turntable platter is rotating.

NOTE: For belt protection, a provision is made to disable the function of the push-buttons whenever the functions lever is in CUT/OFF position.



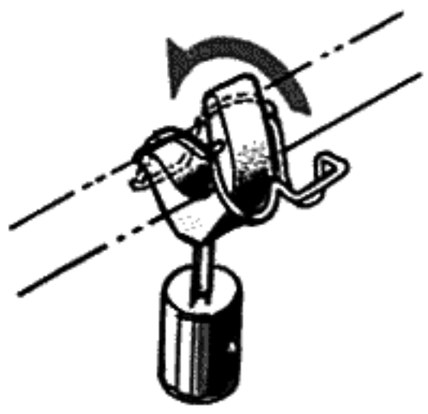
ARM ELEVATOR

The tonearm is raised or lowered by an arm elevator under control of the functions lever. The elevation, i.e., the stroke for the tonearm to travel upward and downward, can be adjusted by loosening the screw.



ARM REST

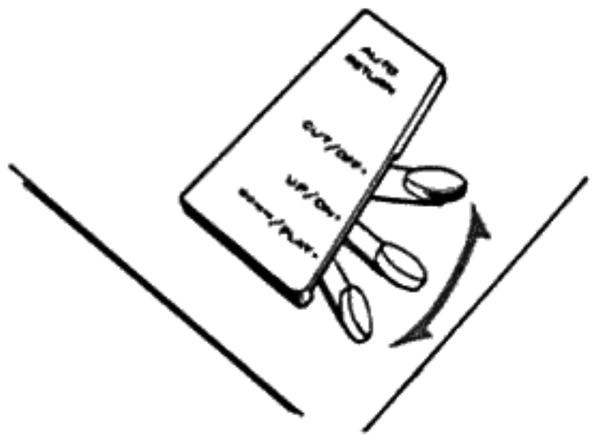
The arm rest is for the support of the tonearm when it is not in use. When the height of the arm elevator has been adjusted, adjust the arm rest to the same height so that the arm will return to the arm rest .



FUNCTIONS LEVER

The functions lever has three control positions; it functions to turn the motor ON and OFF, and to give the tonearm UP, DOWN, CUT, and RETURN position.

1. UP/ON
   When the lever is brought to UP/ON from DOWN/PLAY, the tonearm will quietly float up from the cueing groove while power is provided to the motor. The music will stop temporarily.
2. DOWN/PLAY
   Bring the tonearm above the record and move the lever to DOWN/PLAY. Then the tonearm will quietly float down to the record surface. When the music is over, the tonearm will return to the rest automatically. Then the functions start lever will return from DOWN/PLAY to CUT/OFF.
3. CUT/OFF
   When the lever is brought from DOWN/PLAY to CUT/OFF, power will be cut from the motor. Then the tonearm will quietly float up and return to the rest.



NOTE: Should the functions lever be brought from CUT/OFF to DOWN/PLAY and then quickly to CUT/OFF, before the music starts, the tonearm may not return to the rest. In such a case, move the lever again to DOWN/PLAY and give the arm enough time to touch the surface of the record before moving the lever to CUT/OFF.

STEREO AMPLIFIER CONNECTION

The cartridge furnished with the PL-50 is an induced magnet type. Therefore, use the PHONO MAG input jacks of your amplifier for connection with the PL-50. If your amplifier is not provided with the PHONO MAG input jacks, you must purchase a preamplifier (such as PIONEER STP-2) separately and use it for matching the PL-50 to your amplifier.

1. The output cord of PL-50 has three leads at its end; the first is marked "L", the second, "R", and the third colored in black.
   Connect the "L" leads to the respective PHONO MAG input jacks of your stereo amplifier; "L" is for the left channel connection and "R" for the right channel connection. (Fig.16)
2. The black lead is for ground connection and has a terminal lug on its end.
   Connect the lug to the ground terminal on your amplifier. (Fig.16)

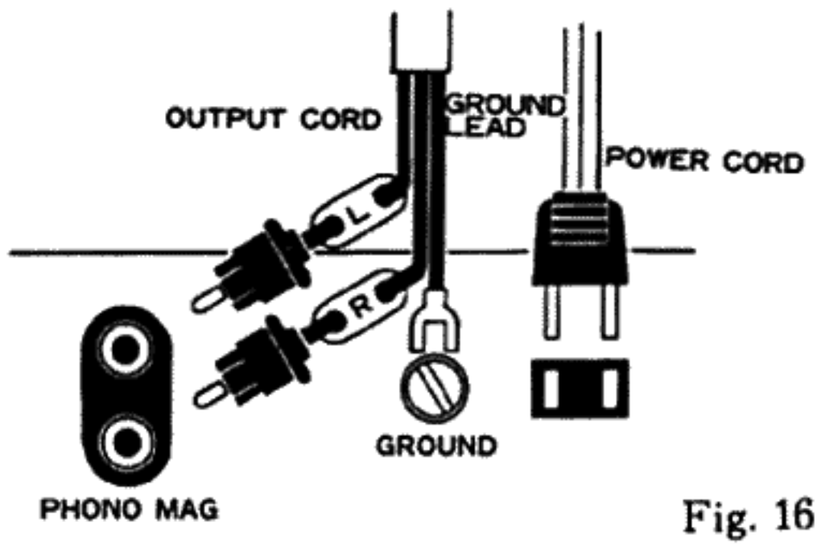


Fig. 16

PLUGGING AC LINE CORD

If the AC line cord plugging should cause much hum, re-plug the cord with its plug-pins reversed and such hum may be eliminated.

OPERATION OF PL-50

PLAYING RECORDS

1. Put a record on the platter.
2. Remove the stylus cover from the cartridge.
3. Bring the functions lever to UP/ON position, and the turntable will start revolving.
4. Push the desired speed selector push-button.
5. Move the tonearm by hand to the desired point above the record.
6. Bring the functions lever from UP/ON to DOWN/PLAY position; the tonearm will float down on the record and the music will start.
7. Shortly after the music is over, the tonearm will quietly float up and return to the rest automatically.

STOPPING MUSIC TEMPORARILY

Bring the functions lever to UP/ON from DOWN/PLAY.
The tonearm will not return to the rest. When you want the tonearm to return to the rest, bring the functions lever to CUT/OFF.

RECORD CARE

CHANGE TURNTABLE SPEED ONLY WHEN THE TURNTABLE IS ROTATING

In the belt system, the turntable speed is changed by shifting the belt up or down on the step capstan by a lever that is controlled with the speed selector push-buttons. For this reason, when the speed is to be changed, the turntable must be rotating to facilitate shifting of the belt.

DO NOT HOLD THE ROTATING TURNTABLE BY HAND

Holding the rotating turntable by hand may cause the belt to go out of the track.

BE CAREFUL OF SHOCK OR VIBRATION

The Model PL-50 operates with a very small tracking force. Select the location of the PL-50 with care. It should be in a stable position.
It is good practice to keep the unit as far away from the loudspeaker cabinets as possible.

ALWAYS KEEP THE STYLUS CLEAN

Dust collected on the stylus point degrades the quality of reproduced sound. If dust is found on the record surface, remove it with a soft, clean cloth moistened with a commercially available record cleaner. When cleaning the stylus, care must be taken not to touch the stylus with fingers.

PARTS REPLACEMENT

STYLUS

Since the stylus is one of the most vital parts of the turntable, it is recommended that the stylus always be kept clean. For best performance and record protection, replace the stylus after every 800 to 1,100 hours of operation. When mounting a new stylus, (Fig.17.) be sure to set the holder firmly in the receptacle of the cartridge. PIONEER PN-35 is recommended as a replacement stylus. It is available from any PIONEER agent in your area.

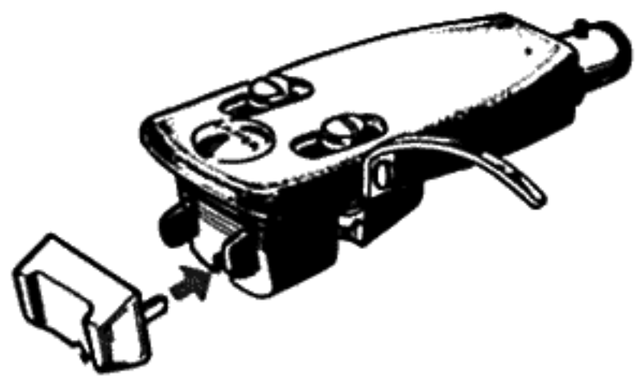


Fig. 17

CARTRIDGE EXCHANGE

When a cartridge of a different type is to be used, be sure to make proper connection of leads between the cartridge pin and pin plug. After a cartridge is mounted in the arm head, the arm overhang must be readjusted as follows:

First tighten the cartridge mounting screws but not completely, inch the cartridge back and forth to bring it to a proper overhang position, and finally tighten the screws securely. (Fig. 18 .)

If your cartridge is lighter than 6.5g add the furnished supplementary weight plate between the arm head and cartridge. If your cartridge is heavier than 12g, mount in the rear of the tonearm one or two furnished auxiliary counterweights. If your cartridge weighs 12 to 18 grams, use the auxiliary weight-A, and if heavier than 18 grams, use both the auxiliary weights-A and -B. The auxiliary counterweights can be screw-mounted in the rear of the tonearm as shown in Fig. 19 .

Whenever the cartridge is changed, the tonearm balance must always be readjusted. For balance adjustment, see the relevant paragraphs in this manual.

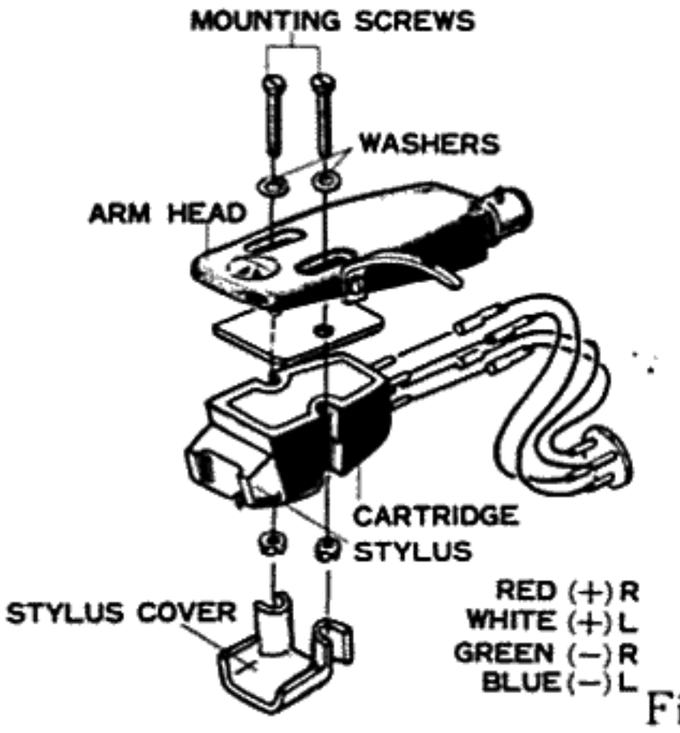


Fig. 18

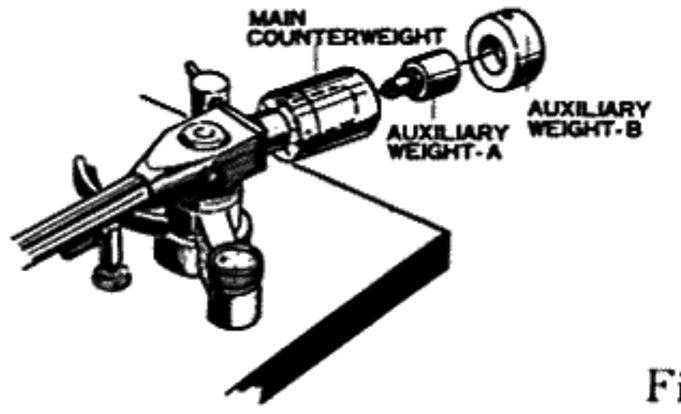


Fig. 19

MAINTENANCE

LUBRICATION

Mechanical noises, and wow and flutter usually result from want of lubricant in rotary parts. In some cases, lack of lubricant may cause the motor to freeze or to burst its winding. Be sure that you lubricate the specified spots at least once every two months if the PL-50 is used for home entertainment. One lubricating point is shown in Fig. 20 .

Another lubricating point is the center shaft of the turntable. Lubricate the shaft with one or two drops of oil at the same time when you lubricate the motor shaft. When lubricating, care must be taken not to cause oil to adhere to other parts such as the capstan or belt. If oil happens to adhere to these parts, wipe it clean with a soft cloth moistened with pure alcohol.

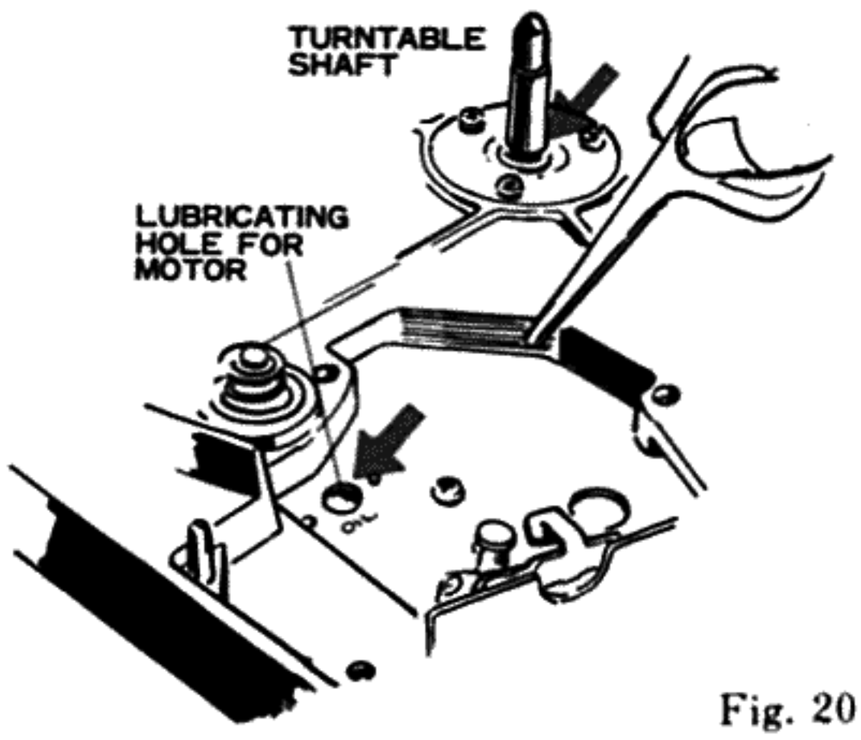


Fig. 20

HUM

"Hum" is a low-pitched droning noise, often 60 or 50 Hz, resulting from a loose connection of the ground lead, if hum occurs;

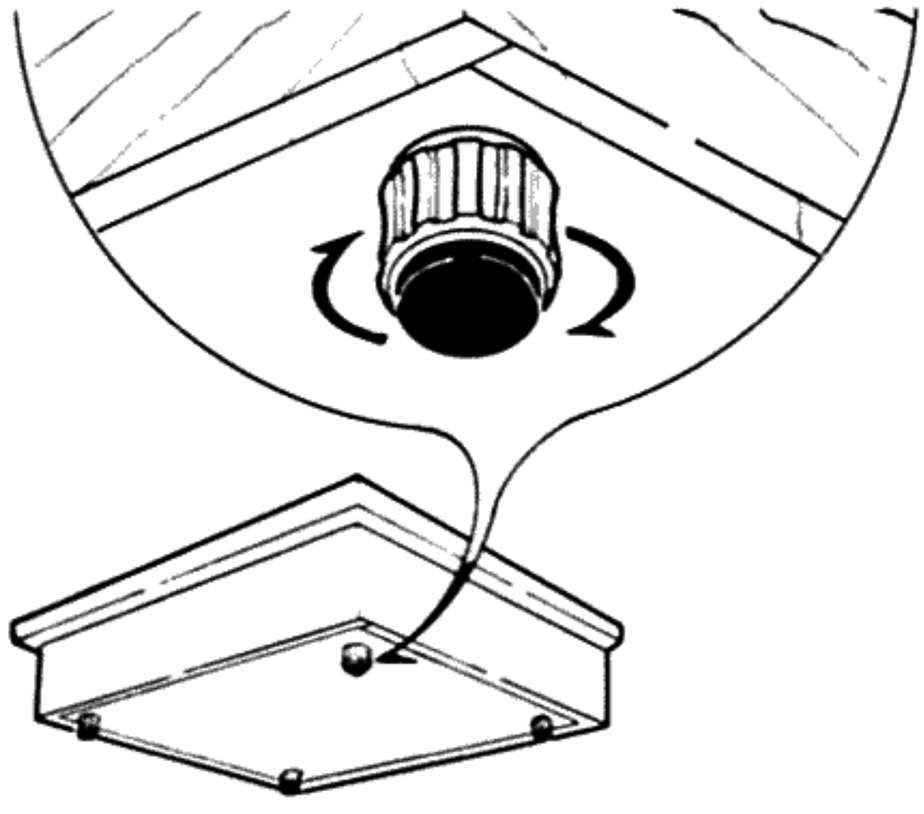
- Check the connection of the PL-50 ground lead (the black lead with a terminal lug) to your amplifier. If loose or not connected at all, correct the connection.
- Check to see if the output cord of the PL-50 is running near the power transformer of your amplifier. Changing the relation of the PL-50 and the amplifier will often eliminate hum.

BUZZ

"Buzz" is a relatively high-pitched noise resulting from induction due to exposure to high intensity TV signals. In this case the pickup cord is functioning as an antenna for picking up the TV signals. If buzz occurs, either make the tonearm cord shorter or change the relation between the turntable and the amplifier.

HOWLING

"Howling" is acoustical feedback from loudspeakers to the tonearm or cartridge. Increasing the distance between the loudspeakers and turntable, or even better, laying a soft cushion underneath the turntable base will eliminate howling.



NOTE: • These newly-provided bottom feet with shockabsorbing springs effective in howling prevention are also designed for conveniently use in height adjustment of your turntable.
When you want to install your turntable on the slant, adjust the bottom feet.

SPECIFICATIONS

- **Motor and turntable**
  1. Motor: 4-pole synchronous.
  2. Turntable drive: Belt-driven.
  3. Speed: Two speeds, 33 1/3 and 45 rpm.
  4. Wow and flutter: 0.08% (WRMS) or less.
  5. S/N: 50 dB or more.
  6. Turntable platter: 12" (30 cm) diameter aluminum alloy.
- **Tonearm**
  1. Tonearm: Static balance type, Pipe arm.
  2. Effective arm length: 224 mm.
  3. Tracking force range: 0.8g ~ 9g.
  4. Furnished cartridge: PC-35 (Induced Magnet Type).
- **Sub functions**
  1. Automatic return.
  2. Anti-skating force control.
  3. Lateral balance control.
  4. Overhang index stand.
  5. Arm elevator.
- **Miscellaneous**
  1. Power requirement: AC 220 ~ 240, 110 ~ 130, 60 Hz, 50 Hz.
  2. Power consumption: 17W MAX.
  3. Dimensions: 7 3/4"(H) x 19 19/32"(W) x 16 13/16"(D)
     197(H) x 498(W) x 427(D) mm :
  4. Weight: 22 lb. 10 kg.

PC-35 SPECIFICATIONS

1. Type: Induced magnet type.
2. Frequency response: 10 Hz to 25,000 Hz.
3. Channel separation: Better than 25 dB at 1,000 Hz.
4. Output: 3.5 mV at 1,000 Hz (50 mm/sec or 2 inches per second).
5. Load resistance: 30 kΩ to 100 kΩ.
6. Stylus: 0.5 mil diamond (PN-35).
7. Compliance: 10×10^{-6} cm/dyne at 100 Hz.
8. Requirement stylus pressure: 2 to 3 grams.
9. Weight: 1/4 oz. 7.2 grams.
10. Overall dimensions: 1 3/8"(L) x 5/8"(W) x 23/32"(H)
    35(L) x 16(W) x 18(H) mm.
11. Mounting: Conforms to the EIA standards.
    The mounting hole pitch 1/2" (12.7 mm).

Note: Specifications and the design subject to possible modification without notice due to improvements.